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ABSTRACT

This paper examines the concept of equal educational opportunity (EEO) in some detail, addressing the following questions, both generally and with special reference to Alaska: Is the EEO concept valid? If sc, is there sufficient basis for government intervention? If so, what types of interventions are most/least likely to be successful? What types of governmental programs are possible and which are most desirable? The basic concept initially examined is the position of the so-called "environmentalist" social scientists: Stripped to its bare essentials, it holds that all human beings are essentially equal at the time of conception, and that their intelligence and scholastic achievement are determined by their environments during their prenatal development and formative years (except for cases of obvious genetic defects such as Mongolism). It is concluded that from the available evidence it seems that the EEO concept should be more applicable to Alaska than to most other states because of Alaska's high rates of social problems. Under these circumstances one would expect that the average low socioeconomic status child in Alaska would have a higher native intelligence that the average low-SES child in the country, and that compensatory education programs would therefore have a higher potential here. It is thought that much more information is needed regarding the nature of learning and the effectiveness of specific interventions with specific types of children. Much of this information could come from the careful evaluation of existing supplemental education programs. (Author/JM)

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THE CONCEPT OF EQUAL EDUCATIONAL OPPORTUNITY:

ITS VALIDITY AND APPLICABILITY TO ALASKA

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I. INTRODUCTION

Probably the most basic goal of education in general and free public education specifically is to give each individual an equal opportunity to achieve to the limit of his or her abilities. Traditionally, this equal educational opportunity (hereinafter referred to as EEO) has been conceived of in terms of school inputs--books, teachers, laboratories, vocational programs--which were provided to all children more or less equally. Traditionally the schools played a passive role; students came to avail themselves of the educational inputs available there, with some eventually learning quite well and others more poorly.

About a decade ago, however, the concept of EEO began to change. People began to become concerned that certain identifiable groups of students--especially from poor and minority backgrounds--consistently achieved more poorly in school than students from middle class, white backgrounds. Since certain aspects of low socioeconomic status (hereinafter referred to as SES) were known to inhibit normal scholastic achievement, it began to become widely accepted that meaningful EEO could not exist unless the schools took steps to overcome them. Thus the schools began to be thrust into a more active role, with the responsibility of

creating achievement among disadvantaged groups through the provision of supplemental or compensatory programs.[1]

Since 1965 some rather large sums of money have been spent on compensatory education, primarily through Title I of the Elementary and Secondary Education Act of 1965 (ESEA Title I), an HEW supplemental school program, and Head Start and Follow Through, the Office of Economic Opportunity's preschool and early grades programs. Unfortunately though, the results of these and other compensatory programs have been quite disappointing. Not only have the low-SES participants in such programs not reached the academic achievement levels of middle class children their age, in most cases they have fared only about as well as they would have without the extra help.

With federal appropriations holding at about one-half of one percent of the federal budget for the past eight years for Title I alone--an especially significant amount since elementary and secondary education is not normally the province of the federal government--the almost total lack of results from federal compensatory education programs is disturbing to say the least. Not only is a very large amount of money apparently being dissipated with no visible return, but the social problems which gave rise to the programs are apparently not being solved for yet another generation of Americans.

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[1]James S. Coleman, The Concept of Equality of Educational Opportunity, paper prepared for the Harvard conference on Equality of Educational Opportunity, October 21, 1967 (ERIC No. ED015 157), pp. 20-21. Also James S. Coleman, "Increasing Educational Opportunity: Research Problems and Results," in The Conditions for Educational Equality, ed. by Sterling M. McMurrin (New York: Committee for Economic Development, 1971), p. 105.

The goal of this paper, therefore, will be to examine the concept of EEO in some detail and answer the following questions, both generally and with special reference to Alaska:

Part II: Is the EEO concept valid?

Part III: If so, is there sufficient basis for government intervention?

Part IV: If so, what types of interventions are most/least likely to be successful?

Part V: What types of governmental programs are possible and which are most desirable?

Since EEO has a wide variety of definitions and interpretations, it is important also to specify which version will be examined. This paper will deal only with the socioeconomic deprivation conception of EEO. It will not deal with:

(1) racial differences, except where race may be used as a proxy for SES in some experimental data;

(2) high cost services such as vocational and special education or science laboratories, since these are purely economic factors about which there is little question;

(3) the equal-dollar or equal-input approach, since these are primarily taxing problems and not directly relevant to meaningful educational questions since they do not deal with learning;

(4) language differences, which are being widely explored under the title of bilingual education;

(5) post-secondary education, since access to college is usually determined by what happens in the earlier years of schooling.

II. IS THE EEO CONCEPT VALID?

The basic concept to be examined is the position of the so-called "environmentalist" social scientists. Stripped to its bare essentials, it holds that all human beings are essentially equal at the time of conception, and that their intelligence and scholastic achievement are determined by their environments during their prenatal development and formative years (except for cases of obvious genetic defects such as Mongolism).

There is considerable evidence to back up this position. Probably the least disputable is the growing body of evidence regarding the effects of nutrition on intelligence. Lower-SES parents do not feed their children as well as middle-SES parents on the average because they often lack either the resources or the knowledge necessary to do so. And it is now virtually indisputable that insufficient nutrition during prenatal development and infancy, when the human brain does most of its growing, leads to stunted brain development.[2] Another physical factor associated with low SES and retarded mental development, again occurring more frequently among low-SES families because of a lack of funds and knowledge, is poor health care in general. Prolonger high fevers and other factors known to cause brain damage are therefore more prevalent among low-SES children.

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[2]Albert Rosenfeld, "Starve the Child, Famish the Future," Saturday Review/World, March 23, 1974, p. 59.

The factors which have received most attention, however, are not physical but social. Bruner has categorized these into three groups of "influences associated with poverty."[3] The first group of influences "relates to the opportunity and encouragement the child is given in the management of goal seeking and of problem solving."[4] These influences include the degree to which an individual expects success, feels powerful, is willing to delay gratification, etc.

The second influence is linguistic; the differential way in which children come to use language for thought, planning, and interaction.

The third influence derives from the pattern of reciprocity which children experience--the expectations of parents, peers, and teachers.

A very large number of experiments has been performed to better understand the nature of such social environmental influences and these have been widely reported in the popular media as well as journals. It is undeniable that lower class children generally receive less mental stimulation than middle class children, that they develop poorer language abilities and self concepts, that they have a more circumscribed range of experiences, etc. It seems reasonable that a lower class upbringing would tend to be a handicap in school. What is the evidence that this is actually so?

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[3]Jerome S. Bruner, "Poverty and Childhood," Sterling M. McMurrin, ed., The Conditions for Educational Equality, pp. 36-56.

[4]Ibid., 36.

Three very large studies have demonstrated conclusively that there is a connection between social class and intelligence/achievement (there are technical reasons for believing that achievement tests in basic areas such as verbal ability really measure underlying intelligence within certain limitations).[5] The most famous such study is the Coleman Report,[6] commissioned by Section 402 of the Civil Rights Act of 1964 and published in 1966. Information from a nationwide sample of 570,000 school pupils, 60,000 teachers, and 4,000 schools was gathered in elaborate detail and analyzed. One of the Coleman Report's more important findings is that a child's achievement tends to be related to his social class and that of his classmates. In fact, this finding, coupled with the finding that variations in school inputs such as facilities and class sizes had almost no effect on achievement, produced a shock from which the education sector has not yet recovered.

The Coleman Report data have been reanalyzed many times and from a variety of viewpoints since their publication. Undoubtedly the most thorough reanalysis was done by a faculty seminar at Harvard University which lasted three years and involved leading scholars from a number of disciplines. This study, as all other reanalyses, found a number of weaknesses in data reliability and statistical methodology, but confirmed the basic Coleman findings.[7]

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[5]U.S. Department of Health, Education and Welfare, Office of Education, Equality of Educational Opportunity, by James S. Coleman et al. (Washington, D.C.: Government Printing Office, 1966), pp. 294-5.

[6]Ibid., entire book.

[7]Frederick Mosteller and Daniel P. Moynihan, eds., On Equality of Educational Opportunity (New York: Random House, 1972).

The second major study was completed in late 1963 by the International Association for the Evaluation of Educational Achievement (IEA). The IEA study attempted to identify the factors which influence achievement in the schools of twenty-two countries (including the U.S.). Six subject areas were studied at three age levels over a period of nine years. Although the complete analysis of the IEA data will take years, early findings have been reported and strongly corroborate Coleman's conclusion regarding the powerful influence of home background on success in the classroom.[8]

The third major study is the British Plowden Report[9] which records the results of a sweeping nationwide study which examined virtually every facet of the British school system in the mid-1960's. Using a stratified random sample of 3,000 children in 173 schools, the National Survey upon which the Plowden Report is based also concluded that achievement was significantly related to social background factors, in this case termed "parental attitudes and home circumstances."[10]

Now, if the environmentalist position were in fact correct, data from studies such as these should demonstrate that variations in intelligence/achievement are statistically explained by SES. But in fact the correlations, while significant, seldom approach an explanatory power

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[8]James Cass, "Do Schools Make a Difference?" Saturday Review/World, January 12, 1974, p. 59.

[9]Great Britain, Department of Education and Science, Central Advisory Council for Education (England), Children and Their Primary Schools, Vol. 1, (London: Her Majesty's Stationery Office, 1967.)

[10]Ibid., p. 33.

of 50%. For instance, the unexplained variation in within-school scores in the Plowden Report was 54%[11] and in the Coleman Report 70 to 85%.[12]

Both Coleman and the Plowden Report were content to leave it at that, but a small group of scientists has been developing increasingly convincing data in the past few years to bolster their claim that the "unexplained" variance is in fact explained largely or wholly by heredity. While this seems a very sensible notion in view of the oft-stated goal of education to allow each individual to achieve to the limits of his or her abilities, which clearly implies variation in native intellectual endowment, few authorities in the field seem willing to even discuss it. The Coleman Report, for instance, contains no mention of initial endowments--not even an explanation of why the factor was not included in the study.[13] And the few professors who have publicly discussed it have been subject to boycotts of their classes and speeches and to violent verbal attacks from philosophical liberals and minority groups.

The reason for this behavior is undoubtedly rooted in the interracial differences in measured intelligence, especially between American blacks and whites, which these studies have shown. If, as the Coleman

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[11] Ibid.

[12] Eric A. Hanushek and John F. Kain, "On the Value of Equality of Educational Opportunity as a Guide to Public Policy," in Mosteller and Moynihan, On Equality of Educational Opportunity, pp. 129-130.

[13] In a subsequent paper Coleman stated that native ability had been regarded as "unmeasurable, particularly in the absence of longitudinal data . . . ." James S. Coleman, The Evaluation of Equality of Educational Opportunity, (Baltimore, Maryland: Johns Hopkins University Center for the Study of Social Organization of Schools, August, 1968), p. 19.

data indicate, blacks and whites are one standard deviation or 15 points apart in average I.Q., the implications for the society are enormous. However, there are good reasons to believe that if an interracial difference exists at all, it is considerably smaller than this. In any case, scientists should seek to discover objective facts regardless of their social policy implications.

The hereditarian position seems inherently more rational and unbiased than the environmentalist. Hereditarians tend to view intelligence as being influenced by both heredity and environment, and seek to find the relative importance of the two factors under any given set of circumstances. The three most influential hereditarians today are Arthur Jensen, Hans Eysenck, and Theodosius Dobzhansky.[14] While a good part of the evidence they use is identical, each has a unique approach which will be summarized here.

Jensen, an educational psychologist at the University of California at Berkeley, started the current I.Q. controversy by publishing an article in the Winter, 1969, Harvard Education Review.[15] He has also published the most voluminous and wide-ranging material on the topic. Jensen sees the environment as primarily a threshhold factor in its effects on

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[14]Richard J. Herrnstein, a Harvard psychologist, has created a good deal of controversy recently by forthrightly stating the hereditarian position, but his writings merely restate the arguments presented by these three men and also those by Christopher Jencks regarding the social effects of hereditarily determined intelligence in a meritocracy.

[15]Arthur R. Jensen, "How Much Can We Boost I.Q. and Scholastic Achievement?", Harvard Education Review, Vol. 39, No. 1, Winter, 1969.

intelligence, analogous to the effects of nutrition on stature. "Below a certain threshhold of environmental adequacy, deprivation can have a markedly depressing effect on intelligence. But above this threshhold, environmental variations cause relatively small differences in intelligence."[16] Jensen feels that most of the populations sampled in studies of the heritability of intelligence are above this threshhold, and that this accounts for the high estimates of heritability and low estimates of environmental determination. In fact, almost all studies of intelligence have been done with white, middle-class subjects, and Jensen concludes from these that heredity accounts for about 80% of the variation in intelligence and environment for 20%.

Jensen's works contain the most thorough discussion of the physical aspects of the environment which, he claims, are responsible for a significant part of the environmental effects on intelligence.[17] He outlines the following lines of evidence:

(1) The importance of prenatal development is demonstrated by the fact that twins tend to be both smaller and lower in achievement than children of single births, and that abdominal decompression of pregnant women tends to produce babies with higher D.Q.'s (the development quotient is the I.Q. analog used through age two).

(2) Low birth weights (under five and one-half pounds) are associated with lower I.Q.'s.

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[16]Arthur R. Jensen, "How Much Can We Boost I.Q. and Scholastic Achievement?", in Environment, Heredity, and Intelligence (Cambridge, Mass.: Harvard Education Review, 1969), p. 60.

[17]Ibid., pp. 65-74.

(3) Mother-child Rh incompatibility has also been clearly linked to lower I.Q.'s.

(4) Nutrition has been shown to influence I.Q. during the period from conception to age four.

Jensen's most important data are drawn mainly from two sources. First are the studies by Sir Cyril Burt using large samples from the London, England school population over the past several decades. Burt's work indicated an I.Q. heritability factor of from 81 to 93%. Second is an analysis by Erlenmeyer-Kimling and Jarvik, published in 1963. These researchers reviewed 52 independent studies of the correlations of kinship relationships and I.Q.'s, with a total of over 30,000 pairings in eight countries on four continents. Their conclusion was that heredity accounts for about 75-76% of the variation in intelligence.

Hans Eysenck, a behaviorist psychologist and director of the psychology department of the Institute of Psychiatry at the University of London, presents a table, reproduced here as Table I, which compares the I.Q. correlations among people related to each other in various ways with the theoretical correlations which would be predicted under the assumption that I.Q. is completely determined by heredity.[18] From this table it is clear why Eysenck and other hereditarians argue that I.Q. is about 80% dependent on heredity. At the extremes, completely unrelated people who share the same environment show about a 20% correlation between their I.Q.'s, and identical twins raised in different environments show about an 80% correlation.

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[18]Hans J. Eysenck, The I.Q. Argument (New York: The Library Press, 1971), p. 58.

Table I

Correlations between	Number of Studies	Actual Correlation	Theoretical Correlation
Unrelated persons			
Children reared apart	4	-.01	.00
Foster parent and child	3	+.20	.00
Children reared together	5	+.24	.00
Collaterals			
Second cousins	1	+.16	+ .14
First cousins	3	+.26	+ .18
Uncle (or aunt) and nephew (or niece)	1	+.34	+ .31
Siblings, reared apart	33	+.47	+ .52
Siblings, reared together	36	+.55	+ .52
Dizygotic twins, different sex	9	+.49	+ .50
Dizygotic twins, same sex	11	+.56	+ .54
Monozygotic twins, reared apart	4	+.75	+1.00
Monozygotic twins, reared together	14	+.87	+1.00
Direct line			
Grandparent and grandchild	3	+.27	+ .31
Parent (as adult) and child	13	+.50	+ .49
Parent (as child) and child	1	+.56	+ .49

[1]Correlations not corrected for attenuation (unreliability)
[2]Assuming assortative mating and partial dominance

Source: H. J. Eysenck, The I.Q. Argument (New York: The Library Press, 1971), p. 58.

Eysenck also stresses the fact that the hereditarian hypothesis is actually an interactionist hypothesis--primarily hereditary but with a sizeable portion of environmental influence--and explains lucidly the genetic phenomenon known as "regression toward the mean."

Theodosius Dobzhansky, a distinguished geneticist and professor at the University of California at Davis, joined the hereditarian group

with the publication of his most recent book in 1973.[19] As would be expected, this book has more of a natural science flavor than those of Jensen and Eysenck, but it also demonstrates an amazingly broad knowledge of social science and philosophy. Dobzhansky's book is very low key and conciliatory, obviously in reaction to the reception which Jensen's writings have received. He takes great pains to explain what I.Q. is and is not, what its significance is, etc., and his conclusions are more guarded and sprinkled with hopeful evidence that I.Q. may be more changeable than it presently appears. Nevertheless, he reaches the same basic conclusions.

One of the points which Dobzhansky makes most forcefully has to do with the notion of I.Q. inheritance which has so disturbed Herrnstein, Jencks, and others in recent times. His table regarding regression toward the mean is reproduced here as Table II. It illustrates the tendency of parents to produce offspring whose average I.Q.'s are halfway between those of the parents and the population mean of 100. Thus, parents with an I.Q. of 120 would produce children averaging 110, and parents with an I.Q. of 80 would produce children averaging 90. (Eysenck has noted that this phenomenon would lead to an equalization of I.Q.'s within six to eight generations, even among completely separated groups starting with the most unequal original I.Q. distribution.[20]) Dobzhansky also points out that I.Q. heritability is very high, genetically speaking, ranking

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[19] Theodosius Dobzhansky, Genetic Diversity and Human Equality (New York: Basic Books, 1973).

[20] H. J. Eysenck, "I.Q. Social Class and Educational Policy," Change, September, 1973, p. 40.

with height and weight in man and far ahead of plant and animal characteristics which are very important in agriculture.

Table II

Average IQ's of Fathers and of Their Children Belonging to Socioeconomic Classes From I, the Highest, to VI, the lowest (after Burt, 1961).

	I	II	III	IV	V	VI
IQ's of fathers	139.7	130.6	115.9	108.2	97.8	84.6
IQ's of children	120.8	114.7	107.8	104.6	98.9	92.6
Frequency per 1,000	3	31	122	258	325	261

Source: Theodosius Dobzhansky, Genetic Diversity and Human Equality (New York: Basic Books, 1973), p. 20.

The most detailed recent analysis of the heredity vs. environment evidence was done by Christopher Jencks and his colleagues as part of their book entitled Inequality.[21] Jencks used a very wide variety of data sources, including the twin data examined in the previously mentioned studies. He also used more sophisticated analytical techniques. Jencks concludes that heritability accounts for very roughly 45% of the variations in I.Q. scores, environment for 35%, and covariance for 20%, although the data from the various sources which he examined varied considerably. The covariance factor, which represents the interaction of heredity and environment (i.e. the tendency for high I.Q. parents to provide a highly stimulating environment for their children), was arbitrarily divided

[21]Christopher Jencks et al., Inequality (New York: Basic Books, 1972).

between the two factors in the other studies cited here. Jencks also makes the interesting observation that English studies yield consistently higher heritability estimates than American studies, and hypothesizes that children's environments are more similar in England.

On the basis of the available evidence briefly reviewed above, it seems fair to conclude that the EEO concept as defined here is valid, but not the pure environmentalist position which seems to be very widely held today. Thomas Sowell has summarized the situation very well as follows:

> With a sufficiently deprived environment, no hereditary potential can develop into actual ability, and with a sufficiently severe congenital defect, no environment can create mental competence. Since either heredity or environment can have a zero effect in extreme cases and each has some effect in normal cases, the question is really one of estimating their changing weights for different combinations of heredity and environment.[22]

It seems reasonable to expect that genes affect intelligence, just as they do other human characteristics. Both kinship studies and the regression of I.Q. scores toward the mean in successive generations present irrefutable evidence that there is a strong genetic component in the determination of intelligence and that this component is responsible for over 50% of observed variations in I.Q. scores.

It should be clear too that EEO would result in I.Q. scores being determined to an even <u>greater</u> extent by heredity as environmental variations are eliminated. This notion seems to chagrin many liberal thinkers

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[22]Thomas Sowell, "The Great I.Q. Controversy," <u>Change</u>, May, 1973, p. 34.

but should not because it means that education would be moving toward meeting its long-held goal of allowing each individual to achieve to the limit of his or her abilities. As Dobzhansky has said, "equality of opportunity involves recognition that different people, carrying different genetic endowments, require different environments for their self-realization."[23]

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[23]Dobzhansky, Genetic Diversity and Human Equality, p. 41.

III. IS THERE SUFFICIENT BASIS FOR GOVERNMENT INTERVENTION?

Given that some people would be denied an equal educational opportunity because of their socioeconomic backgrounds unless compensatory education programs were provided, policy makers must decide whether compensatory programs should in fact be provided. What justification is there for such programs?

First it is important to recognize that this question must be answered for a specific time and place. An impoverished country like Chad probably cannot afford the luxury of full intellectual development because all of its resources must be devoted to more basic needs like food and shelter. Nor could the United States have afforded such programs one hundred years ago for the same reason.

But in the United States of 1974, with its extremely high productivity of material goods, the resources are clearly available to make equal opportunity available for mental development. On a purely theoretical level, it can be argued that the mind is what makes the human species unique, and that therefore the development of the mind is the ultimate good ipso facto worthy of the necessary expenditures. At a slightly lower level of argument, it may be that the U.S. Constitution, and specifically the Equal Protection clause of the fourteenth amendment, will be interpreted to require compensatory education. This question has been explored recently in connection with court cases regarding school

financing. Horowitz, for instance, has concluded that compensatory education is required by the Fourteenth Amendment,[24] while Schoeffle and others argue that the current lack of knowledge about the provision of compensatory education prevents such a finding.[25] And all arguments for free public education, such as the benefits of an informed electorate and a skilled and mobile labor force, apply equally as well to compensatory education.

At the economic level, a number of authors have calculated the value of education (or cost of incomplete/poor education) in terms of lifetime earnings.[26] These analyses are almost always flawed by their failure to control for factors such as I.Q. and have recently been seriously challenged by several authors who claim that compensatory education would in fact have no effect on income inequality (the lessening of which is at least an implied goal of EEO). Thurow has made this argument based on labor market analyses[27] and Jencks based on a series of technical analyses.[28] While these analyses have been very useful in bringing about

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[24]Horowitz, "Unseparate But Unequal--the Emerging Fourteenth Amendment Issue in Public School Education," 13 U.C.L.A. L. Rev. 1147-1172 (1966).

[25]Schoeffle, "The Equal Protection Clause in Public Education," 71 Columbia L. Rev. 1355-1419 (1971).

[26]For instance, Henry M. Levin, "All of Society Pays for Poor Education," Compact, December, 1972/January, 1973, pp. 33-36.

[27]Lester C. Thurow, "Education and Economic Equality," The Public Interest, Summer, 1972, pp. 66-81.

[28]Jencks, et al., Inequality, Chap. 7 and 8.

a more realistic dialogue regarding the effects of education in the economy, they are also somewhat overstated. It is clear that better education for more people undergirds a dynamic society by raising the quality of labor services provided. Also, with unskilled jobs representing an almost vanishing percentage of the job market, numerous authors have contended that the country faces a choice between compensatory education and growing welfare and unemployment rolls.

Finally, compensatory education can be justified on the basis of precedent. As previously mentioned, compensatory education already has a rather heavy federal involvement through ESEA Title I, Head Start, Follow Through, and a number of other programs, especially at the post-secondary level. In addition, several states including Michigan and New York have their own programs. In addition, there are also programs at both the state and federal levels which are similar in that they aim to overcome various handicaps to human development. These include special education, bilingual education, vocational rehabilitation, and numerous manpower training programs.

Of course there is no objective method of determining the correct level of compensatory programs. That can be determined only through the political process in competition with all of the society's other needs. Theoretically, however, the percentage of public expenditures available for human development should increase in direct proportion to the level of technological and economic development. And in any case, a better knowledge of the processes involved in education would improve the quality of the necessary resource allocation decisions.

The question of the validity of the EEO concept for specific regions or states has apparently not been addressed. However, from the available evidence it seems that it should be more applicable to Alaska than to most other states because of Alaska's high rates of social problems such as alcoholism, unemployment, and illiteracy. Under these circumstances one would expect that the average low-SES child in Alaska would have a higher native intelligence than the average low-SES child in the country, and that compensatory education programs would therefore have a higher potential here.

IV. WHAT TYPES OF INTERVENTIONS ARE MOST/LEAST LIKELY TO BE SUCCESSFUL?

Compensatory education programs of the type addressed by this paper are a relatively recent phenomenon, dating from that unique period of national concern for human rights in the mid-1960's. There is an almost unanimous feeling among experts in the field that virtually all of the large scale programs were failures in their first few years and most still appear to be failures.

This result could readily have been predicted since these programs were instituted on a crash basis with the implicit assumption that billions of dollars would solve the problem in short order--a rather typical American attitude. But as a number of authors have pointed out, the money was poured into the public schools, which are essentially middle class institutions which have never had much success with low-SES students. Their response was expectable--provide more of the same type of services which had always failed before, namely teachers and equipment.

But after the first several years produced no results, concerned educators and others began to examine the problem in more detail. A great deal of research has been done, including many special experimental programs. Although the quality of this research, like the quality of most educational research, has been generally poor, some patterns have

begun to emerge. This section will review briefly some of the more important evidence regarding compensatory education programs. An exhaustive study of interventions would be beyond the scope of this paper and in fact it appears that none have yet been published. (only the more important items will be footnoted.)

One thing which apparently will not work is more of the same. An all-encompassing review of the existing research regarding school effectiveness was completed by the RAND Corporation, 1972. This study, commonly known as the RAND Report, concluded that:

(1) "Research has not identified a variant of the existing system that is consistently related to students' educational outcomes."

(2) "Research tentatively suggests that improvement in student outcomes, cognitive and non-cognitive, may require sweeping changes in the organization, structure, and conduct of educational experience."

(3) "Increasing expenditures on traditional educational practice is not likely to improve educational outcomes substantially."[29]

It seems clear that if the effectiveness and efficiency of traditional educational programs for average students is questionable, new methods will certainly be necessary for dealing with disadvantaged students. The same report also suggests a possible funding source in one of its other conclusions: "There seem to be opportunities for significant redirections and in some cases reductions in educational expenditures without deterioration in educational outcomes."[30]

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[29]Harvey A. Averch, et al., How Effective is Schooling? (Santa Monica, Ca.: RAND, 1972) pp. x and xii.

[30]Ibid., p. xiii.

Virtually all experts in the field seem to agree that new approaches to education should be tried, including truly revolutionary ideas, and that these experiments should be carefully evaluated. Probably the most unique idea to date is Jensen's regarding different types of mental ability. Jensen claims that all people develop Level I or associative learning abilities, but that low SES people tend not to develop Level II or cognitive learning abilities.[31] According to Jensen, I.Q. tests measure cognitive skills but all basic skills can be learned through instructional techniques which stress associative skills. Thus, I.Q. deficiencies would not necessarily prevent people from learning the basic skills which they need to be successful.

Some of the more interesting ideas involve non-school programs in areas such as nutrition, health, housing, and income maintenance. A number of writers have remarked that, at least given the current state of educational techniques, the indirect effects of these non-educational programs on education may be far greater than those of educational programs which could be purchased for the same price. The effects of nutrition on I.Q. have already been mentioned. Eysenck has also called for experimentation with glutamic acid, which has been shown to raise the intelligence of febbleminded children and dull rats (but not on average children) in experimental situations.[32] The money needed for research

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[31]Arthur R. Jensen, "How Much Can We Boost I.Q. and Scholastic Achievement?", in Environment, Heredity, and Intelligence (Cambridge, Mass.: Harvard Education Review, 1969), pp. 113-117.

[32]H. J. Eysenck, "I.Q., Social Class and Educational Policy," Change, September, 1973, p. 42.

into this intriguing phenomenon would be a small fraction of current compensatory education budgets and may have very large payoffs.

Another indirect method of increasing the achievement of low SES children is social class integration. The economically segregated housing patterns which have developed in the U.S. over the past 50 years or so have resulted in the present situation where most low SES children grow up in lower-class neighborhoods and schools where the societal norms are not conducive to academic achievement. Two large government studies[33] have demonstrated that socioeconomic integration of schools improves achievement scores and Coleman has stressed the importance of this factor.[34] The city of Duluth has experimented with socioeconomic integration and found it successful with low SES concentrations of up to 30%.[35]

One of the major controversies in compensatory education has been over the proper timing of interventions. Early childhood education has been in vogue for about a decade and has achieved considerable funding, including statewide education for three- and four-year-olds in California. This movement has been justified largely on the basis of Bloom's research from which he concluded that learning capabilities are established at a very early age and are relatively immutable thereafter.[36] However, the

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[33]U.S. Department of Health, Education, and Welfare, Office of Education, Equality of Educational Opportunity, by James S. Coleman et al. (Washington, D.C.: Government Printing Office, 1966) and U.S. Commission on Civil Rights, Racial Isolation in the Public Schools (Washington, D.C.: Government Printing Office, 1967.)

[34]"Class Integration--A Fundamental Break with the Past," Saturday Review, May 27, 1972, pp. 58-59.

[35]Dick Hubert, "The Duluth Experience," Saturday Review, May 27, 1972, pp. 55-58.

[36]Benjamin A. Bloom, Stability and Change in Human Characteristics (New York: Wiley, 1964.)

failure of a number of Early Childhood Education programs--notably Head Start--to achieve lasting results has reopened this question in the last several years.

On the one hand, there have been some very hopeful experiments such as Heber's intensive work with babies of low-I.Q., low-SES mothers which showed a fantastic I.Q. growth over a period of four years.[37] On the other hand, there is a growing body of data which indicate that delaying the starting age for schooling would, on the average and within reasonable limits, result in higher achievement.[38] A great deal of research and experimentation is obviously needed in this area.

One issue on which there seems to be unanimity is the involvement of parents in compensatory education programs dealing with young children. James Conant made this recommendation as early as 1961,[39] and the Coleman Report and other more recent research data overwhelmingly conclude that school programs cannot compensate alone. Rather than thinking of compensatory school programs as overcoming the deficiencies of a low socio-economic background, it may be more useful (and productive) to think of compensatory programs designed to enable the parents to do a better job of raising their children. One universal research finding is that parents

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[37]H. J. Eysenck, The I.Q. Argument (New York: The Library Press, 1971), pp. 129-130.

[38]See David Elkind, "Piagetian and Psychometric Conceptions of Intelligence," Environment, Heredity, and Intelligence (Cambridge, Mass.: Harvard Education Review, 1969), pp. 184-187, and U.S. Congress, House of Representatives, paper entitled "Early Schooling for All?", by Raymond S. Moore and Dennis R. Moore, included in the record by request of Rep. Railsback, October 16, 1972, Congressional Record, CXVIII, 8726-8741.

[39]James B. Conant, Slums and Suburbs (New York: McGraw-Hill, 1961), pp. 146-147.

of all SES groups have high aspirations for their children. This makes it hopeful that training programs in child rearing practices and adult basic education for low SES parents could yield positive results for disadvantaged children.

Two final characteristics of successful compensatory programs are worth noting. First, evaluations of existing programs show a direct correlation between expenditure per pupil and success.[40] And second, one-year programs seem to result only in temporary achievement gains which soon disappear. Also, low SES children seem to stop learning during summer vacations while middle SES students continue to learn. This evidence indicates that compensatory programs, to have any chance of success will have to provide assistance to each child for several years and possibly during summer too.

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[40]Ralph W. Tyler, "The Federal Role in Education," The Public Interest, Winter, 1974, pp. 186-187.

V. WHAT KINDS OF GOVERNMENTAL PROGRAMS ARE POSSIBLE AND WHICH ARE MOST DESIRABLE?

The form of governmental programs obviously depends on many factors, both educational and un-educational. Politics is one of the most fascinating non-educational factors, and good materials are available regarding the politics of compensatory education programs,[41] although that topic is outside the scope of this paper.

Other non-educational factors and possible interventions such as nutrition and health aid and chemical and biological manipulations of the environment could be very important means of improving achievement. It is obvious that a great deal more research is needed on these factors before they can be evaluated as possible alternatives to compensatory education programs per se. It may be, for instance, that a program to provide prenatal and early childhood nutrition for all low SES children in the country would be both cheaper and more educationally effective in the long run than Title I. Such information is vital if the nation's resources are to be allocated wisely. We also need a better understanding of the learning process in order to determine whether early or late

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[41] See especially John R. Hughes and Anne O. Hughes, Equal Education (Bloomington: Indiana University Press, 1972) and U.S. Congress, House, Elementary and Secondary Education Amendments of 1974, H. Rept. 93-805 To Accompany H.R. 69, 93d Cong., 2d sess., 1974.

interventions tend to be more successful, which types of interventions tend to work best with different kinds of children, etc.

The remainder of this section will be devoted to an evaluation of the two current models for distribution of compensatory education--ESEA Title I and the State of Michigan's so-called Section 3 program. They will be evaluated on the basis of: (1) ability to reach the target group, (2) accountability, and (3) production of information regarding the relationship between techniques and results.

Theoretically, the target group should be determined by measuring those environmental factors which could potentially create the disadvantage for each child. Such an approach, however, is impractical on the basis of both cost and knowledge. Title I aid is distributed on the basis of the population percentage below a national poverty standard. This method is based on the high correlation between poverty and educational advantage, but has the weakness that many educationally disadvantaged children are missed, while some poor children with no disadvantage are counted. Section 3 distributions are based on the concentration of students who are far below average achievement levels in basic skills. This method has the weakness of missing many disadvantaged students who are average achievers but should be above average. It also counts children who score low because of very low native abilities.

The Section 3 method seems more desirable even though it sacrifices disadvantaged children with average scores because it reaches all children whose achievement lags, and these are the children who are most likely to become a drag on the society. It also has better political acceptability,

because services are provided to middle class as well as lower class children. In fairness, it should be noted that it may not be feasible to distribute federal funds on the basis of student tests. Title I funds have always been allowed to be distributed within individual schools on bases other than poverty.[42] Amendments currently pending would allow this method to be used within districts to concentrate funds on the most disadvantaged students, and this procedure could even be extended to the state level at some future date.[43] Thus federal funds would be distributed to states on an income criterion, with within-state or at least within-district distributions based on educational criteria at the states' discretion.

The second criterion is accountability. Title I applications, including program descriptions, objectives, and evaluation techniques, are approved by state education agencies before funds are awarded, and final evaluations are submitted to the state agencies by grantee districts and summarized in the states' reports to the U.S. Office of Education. Accountability has been a major problem in Title I. Since there is no national system of standardized data and the individual projects fall into every conceivable category, it is difficult to assess results. Section 3, on the other hand, uses standardized criteria which, although simple, give decision-makers a clear picture of accomplishments. Section 3 also has

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[42]Much of the detailed information in this section was supplied by Kenneth Grieser, Chief, Federal Programs Section, Alaska Department of Education, in a private interview, Juneau, Alaska, April, 1974.

[43]Elementary and Secondary Education Amendments of 1974, op. cit.

the advantage of providing a strong incentive for success, because each year's grant is based on the previous year's success rate. Title I funds are available regardless of previous success or failure, although the state educational agencies have some discretion in fund distribution. It should also be noted that Title I has been plagued since its inception by districts which used the funds to supplant rather than supplement basic programs. This problem is gradually being overcome in spite of strong political opposition.

The third criterion is the production of information regarding the relationship between techniques and results. Translated, that means basic research into the productivity of educational methods. This sounds a bit out of place until one realizes that very little is known about educational productivity, so that each compensatory education program is in effect an experiment. Some piecemeal compilations of successful Title I programs have been prepared, but there is no comprehensive program of this type. No such information is yet available on the Section 3 program, which is only two years old.

In summary, the Section 3 approach seems more promising and, in fact, Title I seems to be evolving toward its approach. If Alaska were to initiate a state compensatory education program, Section 3 should be carefully explored as a starting point, with other state programs such as those of New York and California providing additional inputs. The most important goal of compensatory education programs should obviously be results--both in terms of student achievement and in terms of basic knowledge about learning.

VI. SUMMARY AND CONCLUSIONS

The socioeconomic deprivation concept of EEO is valid, but it is unrealistic to expect that the average achievement of low SES students will ever reach the average of middle SES students. Much more information is needed regarding the nature of learning and the effectiveness of specific interventions with specific types of children. Much of this information could come from the careful evaluation of existing supplemental education programs.

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